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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

ALI, MOHAMMAD

ART UNIT	PAPER NUMBER
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2177

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/255,352

Applicant(s)

TANAKA, SUMIYO

Examiner

Mohammad Ali

Art Unit

2177

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 January 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☒ Claim(s) 33 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 09/255,352.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s) _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. This office action is in response to the Amendment filed on January 18, 2002, Paper No. 7.
2. Claims 1-33 are pending in this Office Action. Claims 1-31 have been amended and 32-33 added as a new.
3. After a further search and a through examination of the present application, claims 1-32 are remain rejected.
4. Applicant's arguments filed on January 18, 2002 with respect to claims 1-33 have been fully considered but they are not deemed to be persuasive.
5. The arguments of the response are largely to the limitation of "an apparatus for specification of a plurality of key images and extraction of common key image" and Sato et al. ("Sato") teaches the claimed invention.
6. In response to the applicant's arguments, "an apparatus for specification of a plurality of key images and extraction of common key image". In Sato, The present invention has been made in consideration of the above-mentioned prior arts, and has as its object to provide an image retrieval method and **apparatus**, which can efficiently retrieve image data even when a search region in image data is divisionally **extracted as a plurality** of regions (col. 2 lines 13-17). The image file 109 stores a registered image input from the registered image input section 231. Reference numeral 242 denotes a region feature amount storage section for storing **feature** amounts, extracted by the region feature amount extraction section 233, of regions obtained by dividing the registered image in units of regions of each registered image,... (col. 27 lines 20-55). The feature amount calculation unit 211 calculates and outputs a **plurality of feature** amounts corresponding to a plurality of block sizes for each image data stored in the image file 109. The index generation unit 212 generates indices based on the feature amounts output from the feature amount calculation unit 211, and search information (to be described later) is stored in the

resolution index table 213 in correspondence with the indices and resolutions (block sizes) (col. 24 lines 59-67).

7. In response to the applicant's arguments, "greater image search accuracy by determining which image features are common,...". In Sato, The retrieval operation of the sixth embodiment may be used as a primary screening operation, and selected candidates may be subjected to comparison in more detail using methods in first and fifth embodiment or a conventionally proposed technique, thus obtaining retrieval results with higher **accuracy** (col. 26 lines 45-50). The image processing apparatus comprises a CPU 1 for executing image retrieval processing, a ROM 2 for storing a control program and a processing program to be executed by the CPU 1, a RAM 3 used as work areas of the control program and the processing program, a file system 4 comprising a magnetic disk, a magneto-optical disk, or the like, which stores image files 109 for storing image data to be searched, and description files 110 for describing the features of image data in the image files 109 to be tested, a retrieval processing memory 5 as a RAM used for retrieval processing (to be described later), a display (DP) 111 for displaying retrieved images or displaying messages required for the search processing, a keyboard (KB) 7 used for inputting various commands to perform a retrieval operation, a mouse 8 used as an auxiliary input device for the retrieval operation, a printer 9 for outputting retrieved results, a similarity calculation processor 10 for calculating the similarity between an input image pattern and image data, a disk controller 6 for controlling a disk drive unit 12, and a CPU bus 11 for interconnecting the respective constituting elements. Note that the control program to be executed by the CPU 1 may be stored in, e.g., a hard disk 13 or a floppy disk (FD) 14, and may be loaded into the RAM 3 when it is executed (col. 5 lines 32-55).
8. In response to the applicant's arguments, "calculating common features,...". In sato, An image retrieval method and apparatus for searching a plurality of images stored in an image file for a desired image are disclosed. When a designated image for designating an image to be retrieved for is input, and its color is designated, the sizes and colors are compared between description information which stores the feature of each of regions obtained by dividing each of images to be

searched stored in the image file, and feature data of the designated image. In this manner, the regions, which are determined to be included in the designated image, of image data are obtained, and the similarities between the obtained regions of image data and the designated image are **calculated**. Image data having higher similarities are read out from the image file, and are displayed while being sorted in the descending order from the highest similarity (Abstract).

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

10. Claims 1-32 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent 6,246,804 B1 issued to Sato et al. ("Sato").
11. With respect to claim 1, Sato teaches, an image database storing a plurality of database images (col. 27 lines 20-55) of database,... (Abstract, col. 1 lines 7-67);
a specifying controller (col. 5 lines 32-67) for specifying a plurality of key images used to specify,... (Abstract, col. 1 lines 7-67);
an extracting controller (col. 2 lines 13-22) for extracting common feature values of common key,... (Abstract, col. 1 lines 7 to col. 2 lines 53);
a calculating (col. 1 lines 27-43) controller for comparing the common feature values, extracted by the extracting controller, with the feature values of the plural database image,... (col. 1 lines 15-37) calculate similarities between the common feature,... (col. 27 lines 32-67) feature values (col. 1 lines 15-col. 2 lines 53, col. 18 lines 55 to col. 19 lines 7); and

a searching controller (col. 5 lines 32-67) for retrieving (col. 1 lines 7-67) from the database images one of the images which is similar to the key image,.... (col. 21 lines 28 to col. 22 lines 13, Fig. 31-32).

13. With respect to claim 7, Sato teaches, an image database storing a plurality of database images (col. 27 lines 20-55) to be searched for (Abstract, col. 1 lines 7-67);
a specifying controller (col. 5 lines 32-67) for specifying a plurality of key images used to specify search conditions (col. 1 lines 7-67, Abstract);
a first calculating controller (col. 5 lines 32-67) for comparing all of the key images, specified by the specifying controller, with respective feature values of the database images to thereby calculate similarities there between (col. 1 lines 7 to col. 2 lines 53, Abstract);
a second calculating controller (col. 5 lines 32-67) for selecting a particular key image from the plural key images specified by the specifying controller and for comparing the particular key image with the database images to thereby calculate similarities there between (col. 1 lines 7 col. 2 lines 53, Abstract);
a third calculating controller for calculating a final similarity for use in searching based on the similaritiescalculated respectively by the first and second calculating controllers (col. 5 lines 32-67, col. 1 lines 7 to col. 2 lines 53, A); and
a searching controller for retrieving one of the database images (col. 27 lines 20-67), which is similar to the particular key image, based on the final similarity calculated by the third calculating controller (col. 1 lines 7 to col. 2 lines 53, col. 5 lines 32-67)).
14. With respect to claim 27, Sato teaches, storing a plurality of database images (col. 27 lines 20-55) to be searched for in an image database (col. 1 lines 7-67, Abstract);
specifying a plurality of key images used to specify search conditions by means of a specifying controller (col. 5 lines 32-67);
comparing all of the key images, specified by the specifying controller, with respective feature values of the database images to thereby calculate similarities there between, by means of a first calculating controller (col. 5 lines 32-67, col. 1 lines 7-67);

selecting by means of a second calculating controller, a particular key image from the plural key images specified by the specifying controller and for comparing the particular key image with the database images to thereby calculate similarities there between (col. 18 lines 55 to col. 19 lines 7, col. 1 lines 7-67);

calculating, by means of a third calculating image searching program, said program controller, a final similarity for use in searching based on the similarities calculated respectively by the first and second calculating controllers (col. 1 lines 7 col. 2 lines 43, col. 5 lines 32-67); and

retrieving by means of a searching controller, one of the database images, which is similar to the particular key image, based on the final similarity calculated by the third calculating controller (col. 1 lines 7-67, col. 5 lines 32-67, col. 27 lines 20-55, Abstract).

15. Claims 4, 11, 14, 17, 21, 24 and 31 have same subject matter as of the above claims and essentially rejected for the same reasons.
16. As to claim 2, an extracting means for extracting a plurality (col. 2 lines 13-17) of types of the feature quantities from the respective key images specified by the specifying controller (Abstract, col. 1 lines 7 col. 2 lines 53);
a selecting means for comparing the feature quantities, extracted by the extracting means, among the plural key images specified by the specifying controller to thereby select at least one of the types of the feature quantities (Abstract, col. 27 lines 20-40); and
a determining means for determining the common feature quantities based on the at least one type of the features quantities selected by the selecting means (Abstract, col. 1 lines 7 to col. 2 lines 53).
17. As to claim 3, the means is operable to compare the feature of the same types among the plural key images by the specifying controller and wherein the determining means is operable to calculate an average value of the feature quantities of the plural key image with respect to the types of the feature quantities selected by the selecting means, to thereby determine the

- calculated average value as representing the common feature quantities (col. 27 lines 20-55, col. 5 lines 32-67, col. 27 lines 20-53, Abstract).
18. As to claim 5, the selecting controller is operable (col. 5 lines 32-67) to select as a particular one of the plural specified key images, the key images which most resemble to the database images being searched for (col. 1 lines 7- col. 2 lines 53).
19. As to claim 6, the calculating controller is operable to calculate a plurality of types of the feature quantities from the plural key images and then to calculate a degree of similarity (col. 18 lines 55 to col. 19 lines 7) by comparing the feature quantities with the database images (col. 27 lines 20-55) for each type, and wherein the selecting controller selects, as the particular key image from the plural specified images, the key images which most resemble to the database images being searched with respect to an average value of degrees of similarities calculated by the calculating means for each type of the feature quantities (col. 1 lines 7 to col. 2 lines 53, col. 5 lines 32-67).
20. As to claim 8, the third calculating controller is operable (col. 5 lines 32-67) to increase a weight of the degree of similarity, calculated by the first calculating controller, to a value greater than that of the degree of similarity, calculated by the second calculating controller, to thereby calculate the final degree of similarity (col. 18 lines 55 to col. 19 lines 7, col. 1 lines 7 to col. 2 lines 43)).
21. As to claim 9, the first calculating controller (col. 5 lines 32-67) is operable to extract the common feature quantities of the image common to all of the key images, and to compare those common feature quantities with the database image to thereby calculate the degree of similarity (col. 18 lines 55 to col. 19 lines 7, col. 1 lines 7-67, Abstract).
22. As to claim 10, the second calculating controller is operable (col. 5 lines 32-67) to select the key images most similar to the database image (col. 27 lines 20-67) from the key images and to calculate the degree of similarity (col. 18 lines 55 to col. 19 lines 7, Abstract).
23. As to claim 12, the extracting step includes the sub-steps of extracting a plurality of types of the feature quantities from the respective key images specified by the specifying controller (col. 5 lines 32-67);

comparing by means of a selecting means the feature quantities, extracted by the extracting sub-step, among the plural key images specified by the specifying controller to thereby select at least one of the types of the feature quantities (col. 1 lines 7 col. 2 lines 53, Abstract); and determining the common feature quantities based on the at least one type of the features quantities selected by the selecting means (col. 18 lines 55 to col. 19 lines 7).

24. As to claim 13, the selecting means is operable (col. 5 lines 32-67) to compare the feature quantities of the same types among the plural key images specified by the specifying controller and wherein the determining means is operable to calculate an average value of the feature quantities of the plural key image with respect to the types of the feature quantities selected by the selecting means, to thereby determine the calculated average value as representing the common feature quantities (col. 1 lines 7 to col. 2 lines 43, Abstract);
25. As to claim 15, "step of specifying includes,..." at col. 2 lines 13-64.
26. As to claim 16, "the calculating controller,..." at Abstract and "the selecting controller,..." at col. 2 lines 13-64.
27. As to claim 18, the third calculating controller is operable to increase a weight of the degree of similarity (col. 18 lines 55 to col. 19 lines 7), calculated by the first calculating controller, to a value greater than that of the degree of similarity, calculated by the second calculating controller, to thereby calculate the final degree of similarity (col. 5 lines 32-67, col. 1 lines 7-67).
28. As to claim 19, the first calculating controller is operable to extract the common feature (Abstract) quantities of the image common to all of the key images, and to compare those common feature quantities with the database image to thereby calculate the degree of similarity (col. 18 lines 55 to col. 19 lines 7, col. 5 lines 32-67).
29. As to claim 20, the second calculating controller is operable (col. 5 lines 32-67) to select the key images most similar to the database image from the key images and to calculate the degree of similarity (col. 1 lines 7 to col. 2 lines 53, col. 27 lines 20-55).
30. As to claim 22, the extracting controller includes an extracting means for extracting a plurality of types of the feature quantities from the respective key images specified by the specifying

controller (col. 5 lines 32-67); a selecting means for comparing the feature quantities, extracted by the extracting sub-step, among the plural key images specified by the specifying controller to thereby select at least one of the types of the feature quantities (col. 1 lines 7-67 , Abstract); and a determining means for determining the common feature quantities based on the at least one type of the features quantities selected by the selecting means (col. 18 lines 55 to col. 19 lines 7, Abstract).

31. As to claim 23, the selecting means is operable to compare the feature quantities of the same types among the plural key images specified by the specifying controller and wherein the determining means is operable to calculate (col. 5 lines 32-67) an average value of the feature quantities of the plural key image with respect to the types of the feature quantities selected by the selecting means, to thereby determine the calculated average value as representing the common feature quantities (col. 18 lines 55 to col. 19 lines 7, Abstract).
33. As to claim 25, "instruction for retrieving,..." at col. 2 lines 13-64.
34. As to claim 26, "comparing includes,..." at Abstract and "retrieving include,..." at col. 2 lines 13-64.
35. As to claim 28, the third calculating controller is operable to increase a weight of the degree of similarity, calculated by the first calculating controller, to a value greater than that of the degree of similarity, calculated by the second calculating controller, to thereby calculate the final degree of similarity (col. 18 lines 55-67, Abstract, col. 1 lines 7-67).
36. As to claim 29, the first calculating controller is operable to extract the common feature quantities of the image common to all of the key images, and to compare those common feature quantities with the database image to thereby calculate the degree of similarity (col. 18 lines 55 to col. 19 lines 7, col. 1 lines 7 to col. 2 lines 43).
37. As to claim 30, the second calculating controller (col. 5 lines 32-67) is operable to select the key images most similar to the database image from the key images and to calculate the degree of similarity (col. 18 lines 55 to col. 19 lines 7, col. 1 lines 7 to col. 2 lines 43).

Allowable Subject Matter

38. Claim 33 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent from including all of the limitations of the base claim and any intervening claims.

Conclusion

39. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


Contact Information

40. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mohammad Ali whose telephone number is (703) 605-4356. The examiner can normally be reached on Monday to Thursday from 7:30am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene can be reached on (703) 305-9790. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7239 for regular communications and (703) 746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-9600.

Mohammad Ali
Patent Examiner


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